

c) depositing the at least one bridging material on to said infill material

A6
Cu+

so that at least one portion of the at least one bridging material contacts the second material through the hole.

9. (*Amended*) A method according to claim 1 comprising depositing a conductive material as the at least one bridging material.

A7 10. (*Amended*) A method according to claim 1 wherein a plurality of bridging materials are used to bridge the channel.

12. (*Amended*) A method according to claim 1 which comprises depositing the infill material using Plasma Enhanced Chemical Vapour Deposition (PECVD).

A8 13. (*Amended*) A method according to claim 1 which comprises depositing one of the following materials as the infill layer: an oxide, a nitride, an oxynitride, polysilicon.

14. (*Amended*) A method according to claim 1 which comprises using a dual frequency PECVD system to deposit the infill material wherein the plasma is generated at a first frequency and species accelerated toward the second material at a second frequency.

15. (*Amended*) A method according to claim 1 which causes the infill material to expand laterally across the channel

16. (*Amended*) A method according to claim 1 comprising causing the deposited material to cap the channel sealing the channel at the top region.

17. (*Amended*) A method according to claim 2 which comprises using an etching process to remove the infill material.

18. (*Amended*) A method according to claim 4 which comprises using any one of the following for the infill material: a polymer material, a polyimide, a photoresist, PIQTM, spin on glass, or other spin on di-electric.

As
Cust

19. (*Amended*) A method according to claim 18 which comprises flowing the infill material so that it flows into the channel.

20. (*Amended*) A method according to claim 18 which comprises using a dry etching process to remove the infill material.

21. (*Amended*) A method according to claim 1 which comprises using a photoresist as the infill material and further comprises using a mask to develop the photoresist and then etching the mask to remove portions of photoresist.

22. (Amended) A method according to claim 1 which comprises using a polyimide as the infill material and subsequently applying a photoresist on top of the infill material to allow the infill material to be patterned and etched.

--23. (New) A micro-machining method of bridging a channel with at least one bridging material, the channel being provided in a substrate comprising a second material and the method comprising the steps of:

a) at least partially filling said channel with an infill material at an uppermost region of said channel;

b) patterning and etching said infill material to form a hole through the infill material to the second material; and

depositing the at least one bridging material on to said infill material so that at least one portion of the at least one bridging material contacts the second material through the hole.--
